ORDER NO. ARD-7908060C

Service Manual

Cassette Deck

RS-M6

Front-Loading Vertical Hold Stereo Cassette Deck
with Full Auto-Stop Mechanism and Dolby NR

(Silver Type
Black Type)

DOLBY SYSTEM

This is the Service Manual for the following areas.

- [D] ..... For All European areas except United Kingdom.
- [N] ..... For Asia, Latin America, Middle East and Africa areas.
- [A] ..... For Australia.

RS-631 MECHANISM SERIES

Specifications

Power requirement:	AC; 110/220 V, 50-60 Hz for All European areas except United Kingdom AC; 110/125/220/240 V, 50-60 Hz for Asia, Latin America, Middle East and Africa areas AC; 240 V, 50-60 Hz for Australia
Power consumption:	9 W
Motor:	Electronic control DC motor
Track system:	4-track 2-channel stereo recording and playback
Tape speed:	4.8 cm/s
Wow and flutter:	0.08% (WRMS), ±0.20% (DIN)
Frequency response:	CrO_2/Fe-Cr tape; 30 – 15,000 Hz 30 – 14,000 Hz (DIN) Normal tape; 30 – 14,000 Hz 30 – 13,000 Hz (DIN)
Signal-to-noise ratio:	Dolby* NR in; 66 dB (above 5 kHz) Dolby NR out; 56 dB (signal level = max. recording level, Fe-Cr/CrO_2 type tape)
Fast forward and rewind time:	Approx. 86 seconds with C-60 cassette tape
Inputs:	MIC; sensitivity 0.25 mV, input impedance 33 kΩ over applicable microphone impedance 600 Ω – 10 kΩ LINE; sensitivity 60 mV, input impedance 47 kΩ
Outputs:	LINE; output level 420 mV, output impedance 1.5 kΩ or less, load impedance 22 kΩ over HEADPHONE; output level 60 mV, load impedance 8 Ω
Rec/pb connection:	5 P DIN type; input sensitivity 0.25 mV, impedance 8.2 kΩ output level 420 mV, impedance 5.0 kΩ
Bias frequency:	83 kHz
Heads:	2-head system; 1-supper permalloy head for record/playback 1-double-gap ferrite head for erasure
Dimensions:	41.0 cm(W) × 14.2 cm(H) × 20.5 cm(D)
Weight:	3.8 kg

Specifications are subject to change without notice.

* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS

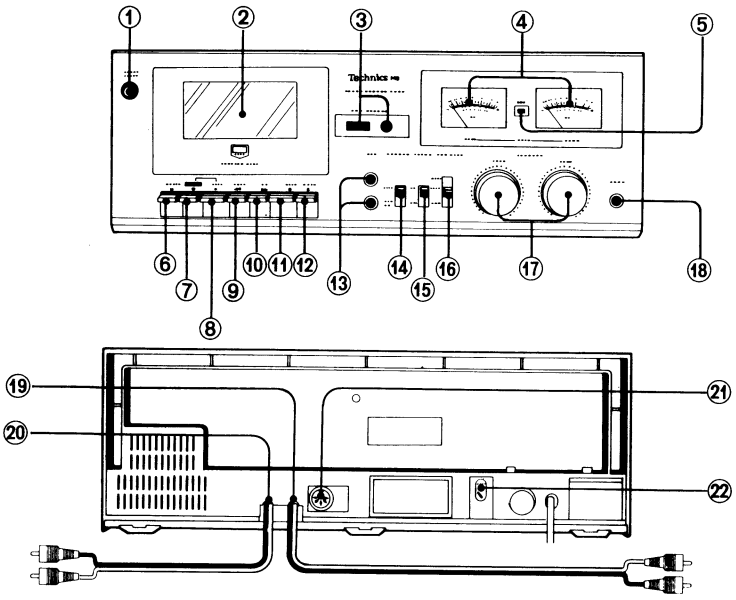


Fig. 1

① **Power switch** (power)
② **Cassette holder**
③ **Tape counter and Reset button** (tape counter)
④ **VU meters** (left-level-right)
⑤ **Recording indication lamp** (rec)
⑥ **Pause button** (pause) (❚❚)
⑦ **Record button** (record) (○)
⑧ **Play button** (play) (▶)
⑨ **Rewind button** (rew) (◀◀)
⑩ **Fast forward button** (ff) (▶▶)
⑪ **Stop button** (stop) (■)
⑫ **Eject button** (eject) (▲)
⑬ **Microphone jacks** (mic) (left/right)
⑭ **Input selector** (input select)
⑮ **Dolby noise-reduction switch** (Dolby NR)
⑯ **Tape selector** (tape select)
⑰ **Input level controls** (left/input level/right)
⑱ **Headphones jack** (phones)
⑲ **Line input cord** (LINE IN)
⑳ **Line output cord** (LINE OUT)
㉑ **Record/playback connection socket** (REC/PLAY)
㉒ **Voltage selector** (VOLTAGE SELECTOR)

DISASSEMBLY INSTRUCTIONS

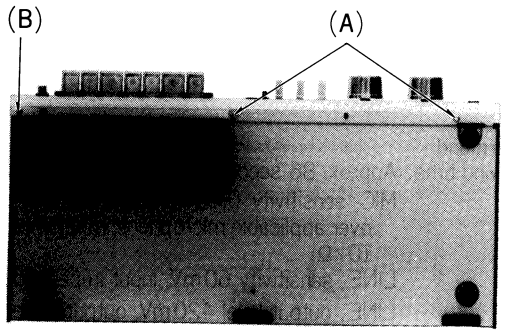


Fig. 2

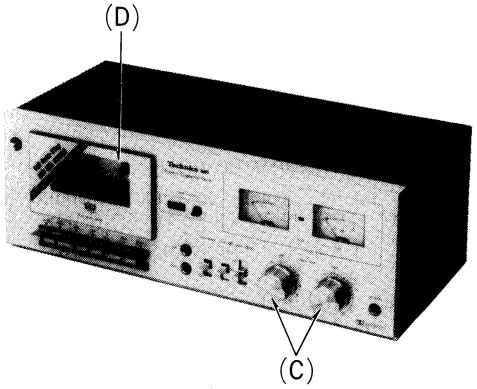


Fig. 3

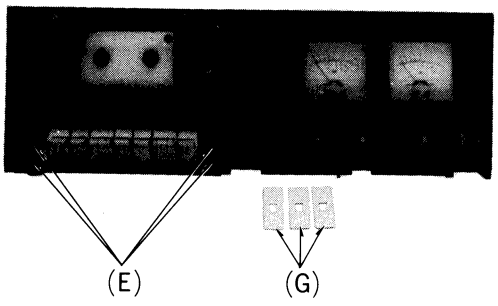


Fig. 4

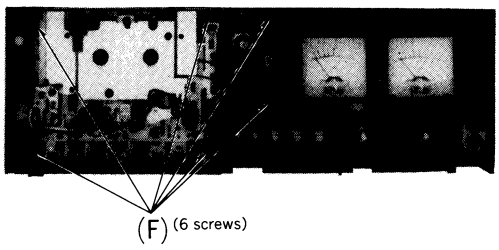


Fig. 5

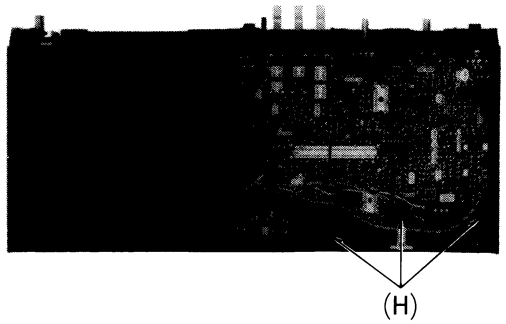
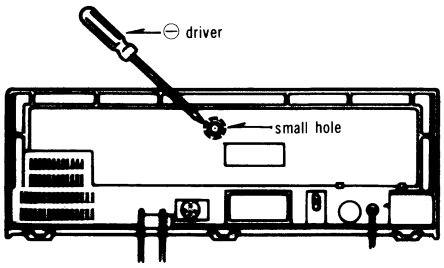


Fig. 6

Caution:

Motor speed can be ajusted through the small hole on the back-side of main case by the ⊖ driver as shown in the diagram below.

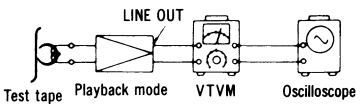
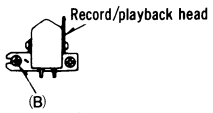
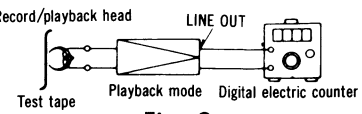


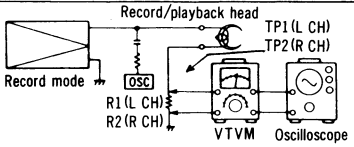
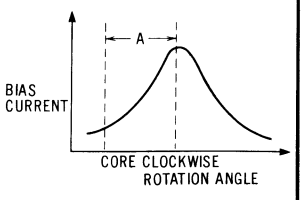
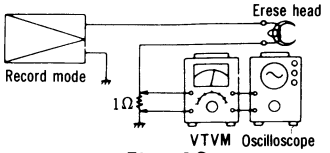
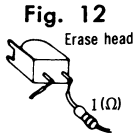
Procedure	To remove ——.	Remove ——.	Shown in fig. ——.
1	Bottom cover	• 2 screws ..... (A)	2
2	Front panel	• 1 screw ..... (B) • 2 control knob ..... (C) • Cassette lid ..... (D)	2 3 3
3	Control button assembly and cassette holder	• 4 red screws ..... (E)	4
4	Mechanism	• 6 red screws ..... (F)	5
4	Circuit board	• 3 switch shelters ..... (G) • 3 red screws ..... (H)	4 6

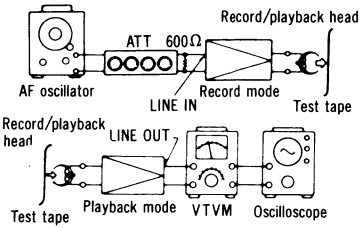
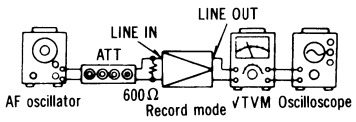
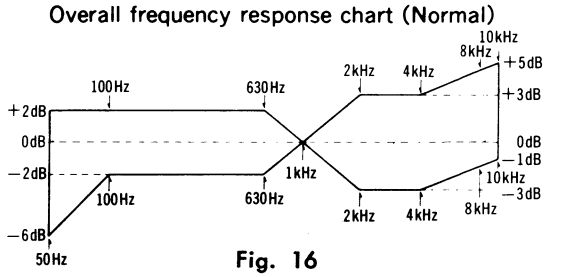
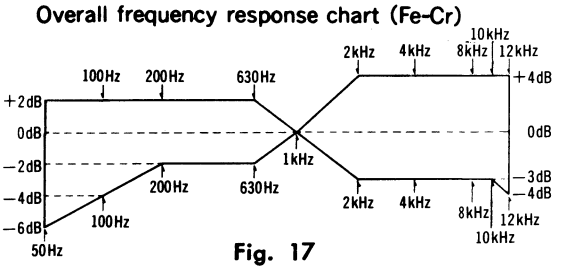
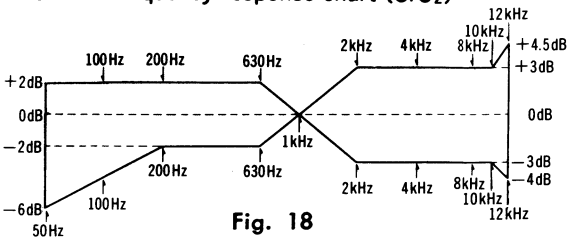
MEASUREMENT AND ADJUSTMENT METHODS

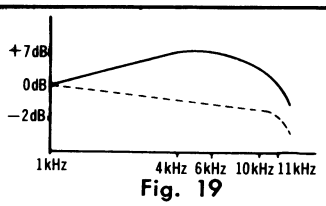
NOTE: Set lever switches and controls in the following positions, unless otherwise specified.

- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature: 20±5°C (68±9°F)
- Dolby NR switch: OUT.
- Tape selector: Normal position.

ITEM	MEASUREMENT & ADJUSTMENT
Ⓐ Head azimuth adjustment Condition: * Playback mode Equipment: * VTVM * Oscilloscope * Test tape (azimuth) ··· QZZCFM	1. Test equipment connection is shown in fig. 7. 2. Playback azimuth tape (QZZCFM 8kHz). 3. Adjust record/playback head angle adjustment screw (B) in fig. 8 so that output level at LINE OUT becomes maximum. 4. Measure both channels, and adjust levels for equal output. 5. After adjustment lock head adjustment screw with lacquer.  Fig. 7  Fig. 8
Ⓑ Tape speed Condition: * Playback mode Equipment: * Digital electronic counter or frequency counter * Test tape ··· QZZCWAT	**Tape speed accuracy** 1. Test equipment connection is shown in fig. 9. 2. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to frequency counter. 3. Measure this frequency. 4. On the basis of 3,000Hz, determine value by following formula: $\text{Tape speed accuracy} = \frac{f-3{,}000}{3{,}000} \times 100\ (\%)$ where, f = measured value  Fig. 9

ITEM	MEASUREMENT & ADJUSTMENT
	5. Take measurement at middle section of tape. **Standard value: ±1.5%** **Adjustment method** 1. Playback the test tape (middle). 2. Adjust so that frequency becomes 3,000Hz. 3. Tape speed adjustment VR shown in CAUTION on page 2. **Tape speed fluctuation** Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows: $\text{Tape speed fluctuation} = \frac{f_1 - f_2}{3{,}000} \times 100\ (\%)$ f_1 = maximum value, f_2 = minimum value **Standard value: 1%**
Ⓒ Playback gain Condition: * Playback mode Equipment: * VTVM * Oscilloscope * Test tape ··· QZZCFM	1. Test equipment connection is shown in fig. 7. 2. Playback standard recording level portion on test tape (QZZCFM 315Hz), and using VTVM measure the output level at LINE OUT jack. 3. Make measurement for both channels. **Standard value: 0.39V** **Adjustment** 1. If measured value is not standard, adjust VR3 (L-CH), VR4 (R-CH) (See fig. 20 on page 5). 2. After adjustment, check "Playback frequency response" again.
Ⓓ Bias current Condition: * Record mode * When bias current is adjusted on one-channel only, note that bias current on the other channel may vary. * When L5 or L6 is the replaced, preset core position to bottom side of coill and then readjust optimum bias current. Equipment: * VTVM * Oscilloscope	1. Test equipment connection is shown in fig. 10. 2. Place UNIT into record mode, and tape selector to normal position. 3. Read voltage on VTVM and calculate bias current by following formula: $\text{Bias current (A)} = \frac{\text{Value read on VTVM (V)}}{10\ (\Omega)}$  Fig. 10 **Standard value: around 315μA (Normal, Fe-Cr position) around 380μA (CrO_2 position)** 4. Adjust L5 (L-CH) and L6 (R-CH) (See fig. 20 on page 5). **Note:** 1. Adjusting L5 and L6 causes bias current to vary as shown in fig. 11. 2. Bias current is adjusted by portion A (fig. 11).  Fig. 11
Ⓔ Erase current Condition: * Record mode Equipment: * VTVM * Oscilloscope * Resistor (1Ω)	1. Connect 1Ω resistor between the ground side terminal of erase head and ground lead wire removed (See fig. 13). 2. Connect VTVM to both ends of 1Ω resistor. (See fig. 12). 3. Place UNIT into record mode, and measure voltage across the 1Ω resistor. 4. Determine erase current with the following formula: $\text{Erase current (A)} = \frac{\text{Voltage across both ends of } 1\Omega \text{ resistor}}{1\ (\Omega)}$  Fig. 12  Fig. 13 **Standard value: More than 40mA (Normal position), More than 40 mA (Fe-Cr position), More than 55mA (CrO_2 position)**

ITEM	MEASUREMENT & ADJUSTMENT
Ⓕ Overall gain Condition: * Record/playback mode * Input level control ··· MAX * Standard input level; MIC ····· −72±4 dB LINE IN ··· −24±3 dB DIN ····· −49±4 dB Equipment: * AF oscillator * VTVM * Oscilloscope * ATT * Test tape (reference blank tape) ··· QZZCRA for Normal	1. Test equipment connection is shown in fig. 14. 2. Place UNIT into record mode, and tape selector to normal position. 3. Supply 1 kHz signal (−24 dB) from AF oscillator, through ATT, to LINE IN. 4. Adjust ATT until monitor level at LINE OUT becomes 0.39 V. 5. Using test tape, make recording. 6. Playback recorded tape, and make sure the value at LINE OUT on VTVM becomes 0.39 V (−7 dB). 7. If measured value is not 0.39 V, adjust VR5 (L-CH), VR6 (R-CH) (See fig. 20 on page 5). 8. Repeat from step (2).  **Fig. 14**
Ⓖ Level meter Condition: * Record mode * Input level control ··· MAX Equipment: * VTVM * Oscilloscope * AF oscillator * ATT	1. Test equipment connection is shown in fig. 15. 2. Supply 1 kHz signal from the AF oscillator, through the ATT, to the LINE IN jack. 3. Adjust ATT so that the monitor level at LINE OUT becomes 0.39 V. 4. Check to see that the level meter stays within the range of −1 dB to +1 dB. 5. If it is beyond the range, carry out the following adjustments: 1. Open soldered portions a (L-CH) and c (R-CH) indicated as "DOWN" where level more than +1 dB. 2. Open soldered portions b (L-CH) and d (R-CH) indicated as "UP" where level less than −1 dB. (See wiring connection diagram on page 8.)  **Fig. 15**
Ⓗ Overall frequency response Condition: * Record/playback mode * Input level control ··· MAX Equipment: * VTVM * AF oscillator * ATT * Test tape (reference blank test tape) ··· QZZCRA for Normal ··· QZZCRX for CrO_2 ··· QZZCRY for Fe-Cr	1. Test equipment connection is shown in fig. 14. 2. Load reference blank test tape and place UNIT into record mode. 3. Supply 1 kHz signal from AF oscillator through ATT to LINE IN. 4. Adjust ATT so that input level is −20 dB below standard recording level (standard recording level ····· −24 dB). 5. Record each frequency 50 Hz, 100 Hz, 200 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz and 10 kHz (12 kHz for CrO_2 and Fe-Cr tape) at the same level. 6. Playback and express in dB the difference between playback output level of each frequency based on playback output level of 1 kHz. 7. Make sure that the measured value is within the range specified in the overall frequency response chart. 8. Set the tape selector to CrO_2, Fe-Cr position. 9. Measure as same as manner above. 10. Make sure that the measured value is within the range specified in the overall frequency response chart for CrO_2 and Fe-Cr tape shown in fig. 17 and 18. **Overall frequency response chart (Normal)**  **Fig. 16** **Overall frequency response chart (Fe-Cr)**  **Fig. 17** **Overall frequency response chart (CrO_2)**  **Fig. 18**

ITEM	MEASUREMENT & ADJUSTMENT
❶ **Overall frequency adjustment response** (As a standard for adjustment)	**Adjustment —Using bias current** 1. When the frequency response between the middle and high-frequency range becomes higher than the standard value, as shown by the solid line in fig. 19, increase the bias current by turning L5 (L-CH), L6 (R-CH). 2. When it becomes lower, as shown by dotted line, reduce the bias current by turning L5 (L-CH), L6 (R-CH). **Note:** For the method of bias current measurement, refer to "Bias current adjustment" on page 3.  **Fig. 19**
❷ **Dolby NR circuit** Condition: * Record mode * Input level control ··· MAX Equipment: * VTVM * AF oscillator * ATT * Oscilloscope	1. Place UNIT into record mode, set the Dolby NR switch to OUT position and supply to LINE IN to obtain −34.5 dB at TP4 (L-CH), TP5 (R-CH) (frequency 5 kHz). 2. Confirm that the value at IN position is 8 (±2.5) dB greater than the value at OUT position of Dolby NR switch.

ADJUSTMENT PARTS LOCATION

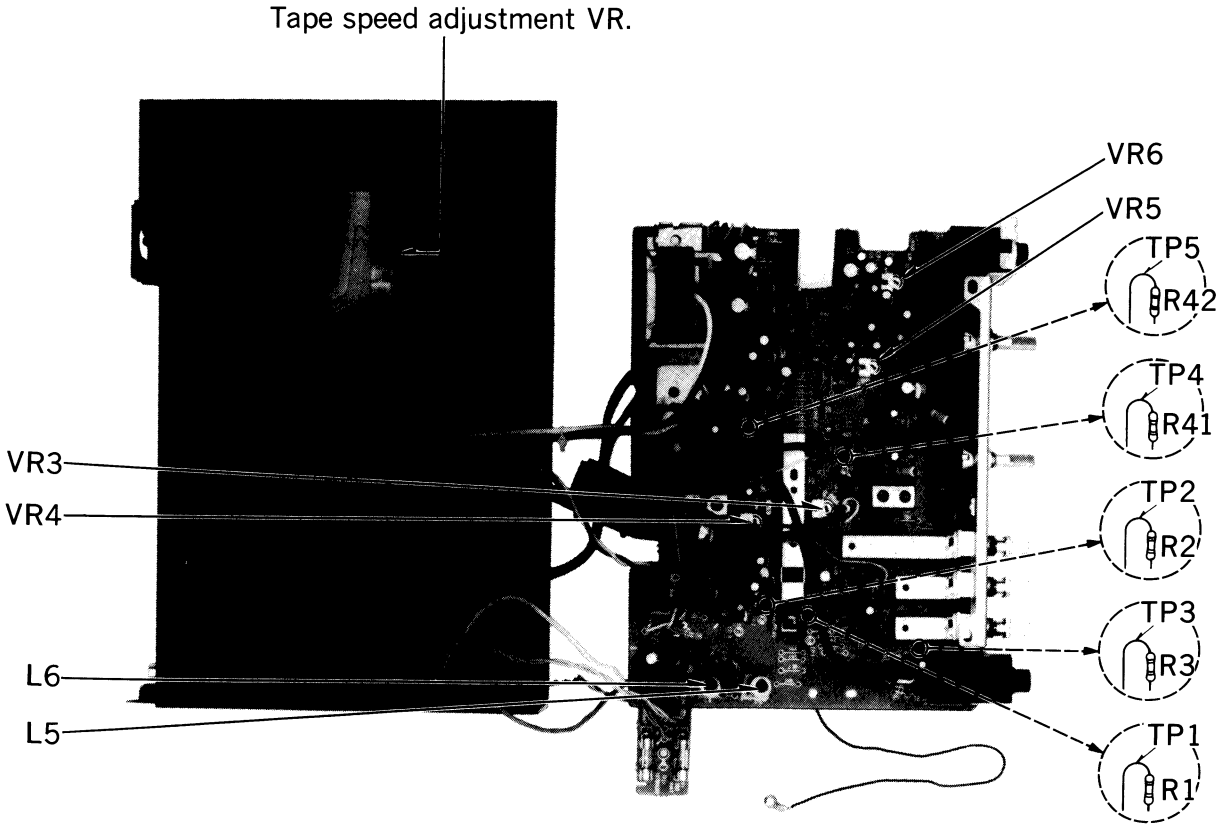
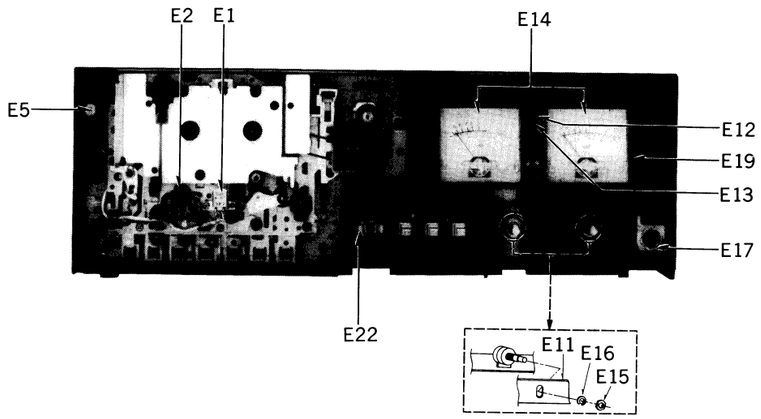
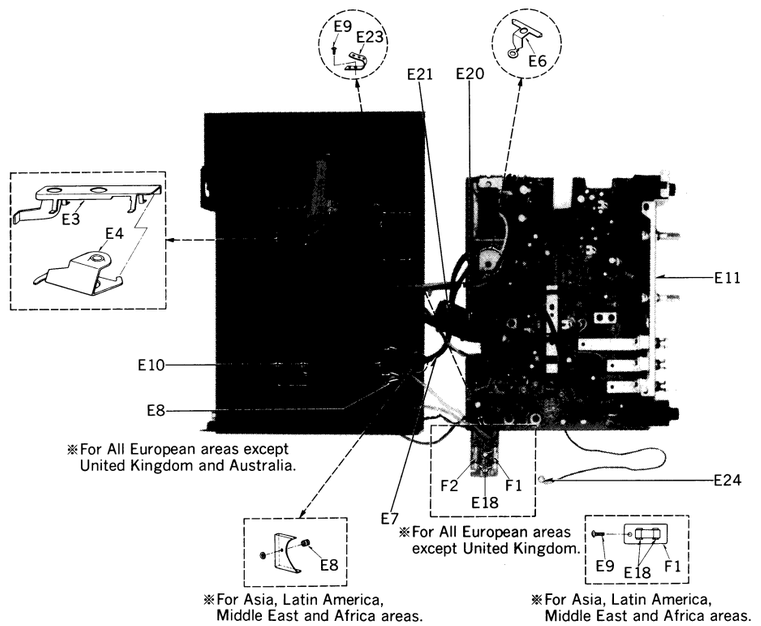


Fig. 20

ELECTRICAL PARTS LOCATION

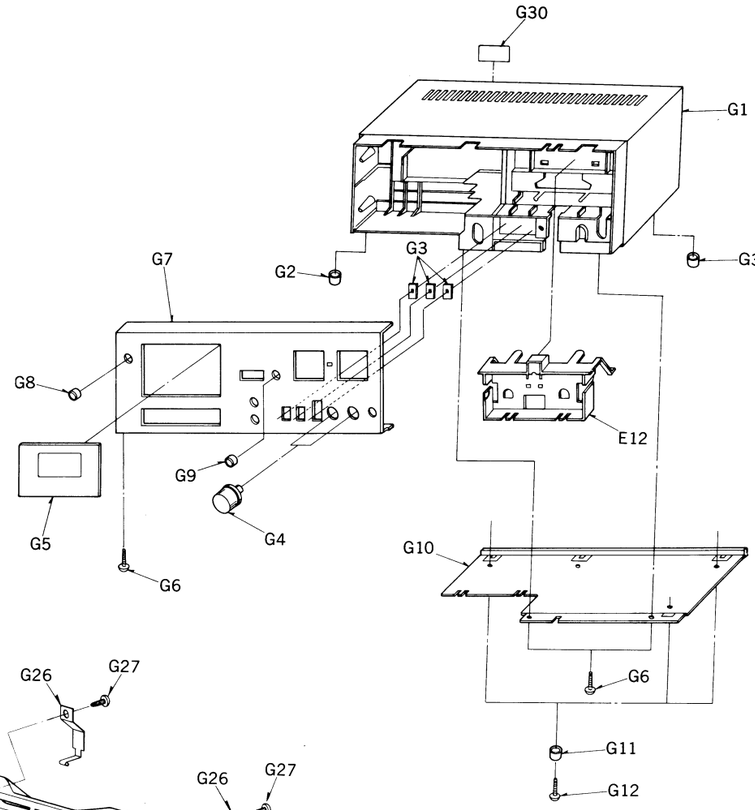


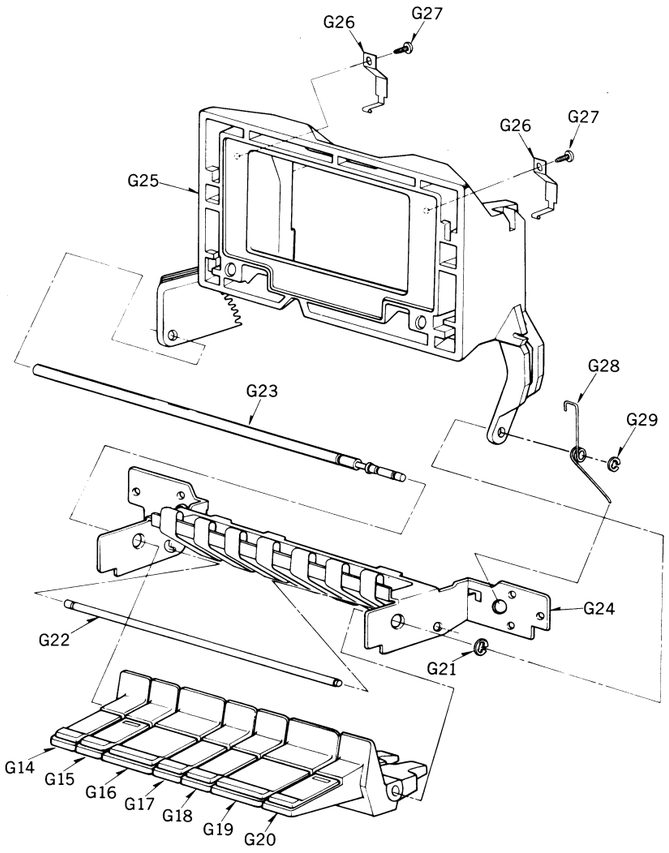


NOTE: △ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.		Part No.	Part Name & Description
		ELECTRICAL PARTS	
E1		QWY4113ZA	Record/Playback Head
E2		QWY2122ZB	Erase Head
E3		QML3568	Recording Lever-A
E4		QML3569	Recording Lever-B
E5		QXR0539 "Silver Type"	Power Button Assembly
		QXR0539K "Black Type"	"
E6		QMA3840	Earth Plate
E7	Ⓓ △	QFC1204M	AC Power Cord
※For All European areas except United Kingdom.			
	Ⓝ △	QFC1203M	"
※For Asia, Latin America, Middle East and Africa areas.			
	Ⓐ △	QFC1208M	"
※For Australia.			
E8	ⒹⒶ	QTD1164	Cord Bushing
※For All European areas except United Kingdom and Australia.			
	Ⓝ	QTD1129	"
※For Asia, Latin America, Middle East and Africa areas.			
E9		XTV3+10BFN	Tapping Screw ⊕3×10
E10		XTV3+16BFN	Tapping Screw ⊕3×16
E11		QMA3893	Volume Angle
E12		QKJ0381	Level Meter Holder
E13		QBG1366A	Rubber Bush
E14		QSL1109RNM	Level Meter
E15		QNQ1004	Nut 8φ
E16		QWQ2002	Washer
E17		QNQ1070	Nut 12φ
E18	Ⓓ	QTF1054	Fuse Holder
※For All European areas except United Kingdom.			
	Ⓝ	QTF1049	"
※For Asia, Latin America, Middle East and Africa areas.			
E19		XAMQ21P100N	Pilot Lamp
E20		QFC2135	Pin Cord
E21		QKJ0382	Cord Clamper
E22		QMA3841	Microphone Holder
E23		RME144ZA	Cord Clamper

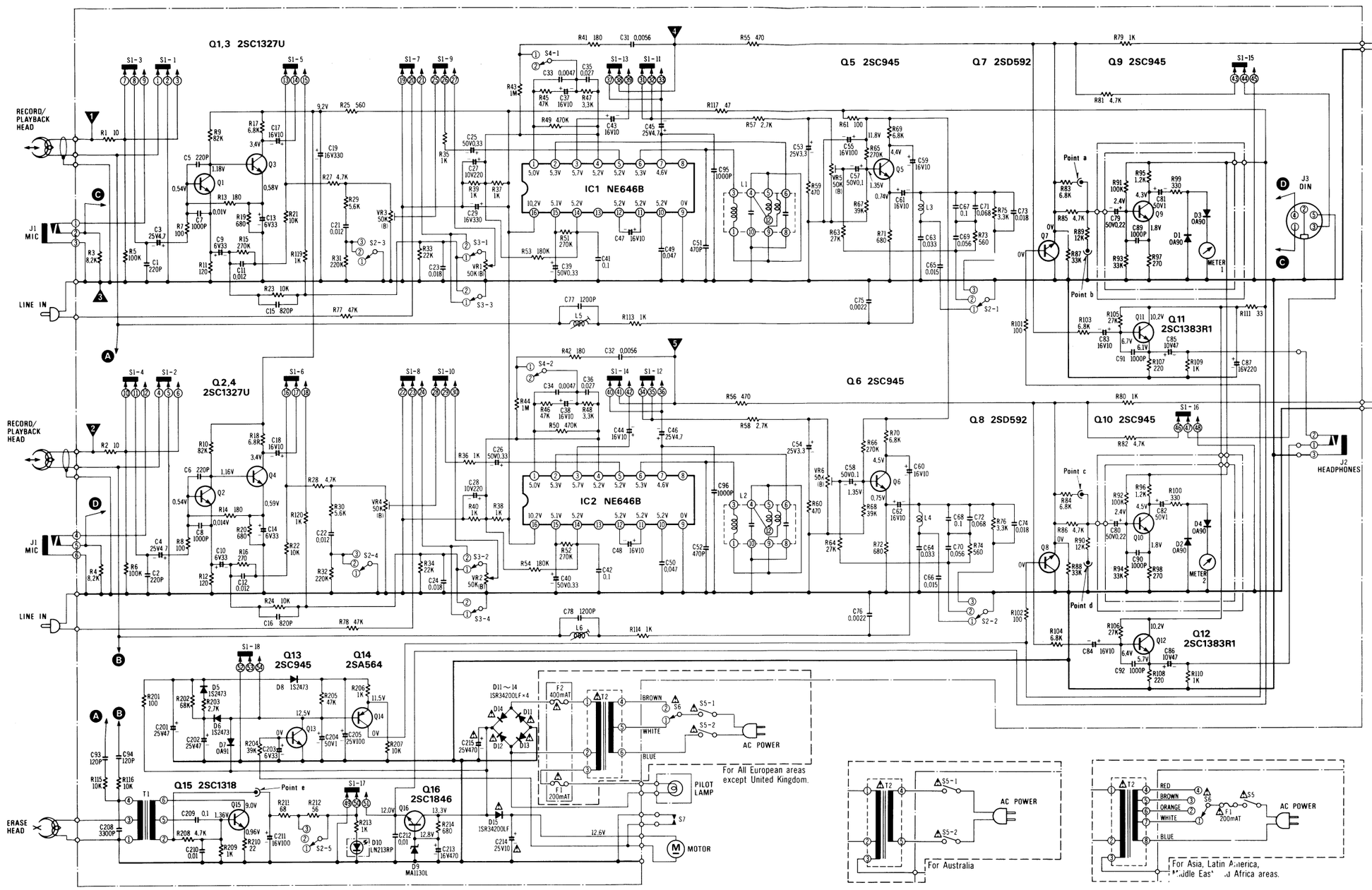
CABINET PARTS





Ref. No.		Part No.	Part Name & Description
		CABINET PARTS	
G1		QKM1385K	Main Case
G2		QKA1081	Case Foot
G3		QGK2998	Switch Shelter
G4		QGT1468	Volume Knob
G5		QYF0375H "Silver Type"	Cassette Lid Assembly
		QYF0376H "Black Type"	"
G6		XTN3+10B	Tapping Screw ⊕3×10
G7		QGP1606 "Silver Type"	Front Panel
		QGP1606K "Black Type"	"
G8		QGG0140A	Power Button Guide
G9		QGG0153	Counter Button Guide
G10		QGC1176	Bottom Cover
G11		QKA1044	Rubber Foot
G12		XTN3+8B	Tapping Screw ⊕3×8
G13		QKJ0385	Spacer
G14		QGO1580 "Silver Type"	Pause Button
		QGO1593 "Black Type"	Pause Button
G15		QGO1579 "Silver Type"	Record Button
		QGO1592 "Black Type"	"
G16		QGO1578 "Silver Type"	Playback Button
		QGO1591 "Black Type"	"
G17		QGO1577 "Silver Type"	Rewind Button
		QGO1590 "Black Type"	"
G18		QGO1576 "Silver Type"	Fast Forward Button
		QGO1589 "Black Type"	"
G19		QGO1575 "Silver Type"	Stop Button
		QGO1588 "Black Type"	"
G20		QGO1574 "Silver Type"	Eject Button
		QGO1587 "Black Type"	"
G21		XUC4FT	Stop Ring 4φ
G22		QMN1861	Push Button Shaft-B
G23		QMN2535	Push Button Shaft-A
G24		QXA0720	Push Button Holding Angle Assembly
G25		QKF6011	Cassette Holder
G26		QBP1818	Holder Spring
G27		XTN26+6B	Tapping Screw ⊕2.6×6
G28		QBN1641	Lid Spring
G29		XUC3FT	Stop Ring 3φ
G30	Ⓓ	QGS2712	Main Name Plate
※For All European areas except United Kingdom.			
	Ⓝ	QGS2735	"
※For Asia, Latin America, Middle East and Africa areas.			
	Ⓐ	QGS2737	"
※For Australia.			
		ACCESSORIES	
A1	Ⓓ	QQT2680	Instruction Book
※For All European areas except United Kingdom.			
	Ⓝ	QQT2709	"
※For Asia, Latin America, Middle East and Africa areas.			
	Ⓐ	QQT2695	Instruction Book
※For Australia.			
A2	Ⓝ	QJP0603S	AC Plug Adaptor
※For Asia, Latin America, Middle East and Africa areas.			
		PACKINGS	
P1		QPN3907	Inside Carton
P2		QPA0516	Cushion
P3		XZB40X60A02	Poly Bag
P4		QPG1994	Pad
P5		QPS0432	Spacer

SCHEMATIC DIAGRAM



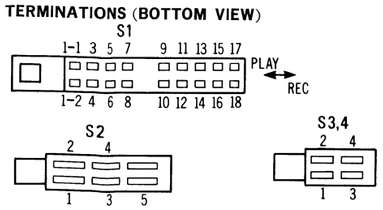
NOTE: RESISTORS
ERD ··· Carbon
ERG ··· Metal-oxide
ERO ··· Metal-film
ERX ··· Metal-film
ERQ ··· Fuse type metallic
ERC ··· Solid
ERF ··· Cement

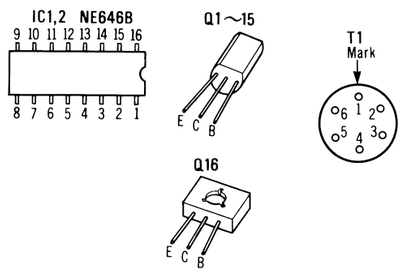
CAPACITORS
ECG□ ····· Ceramic
ECK□ ····· Ceramic
ECC□ ····· Ceramic
ECF□ ····· Ceramic
ECQM ····· Polyester film
ECQE····· Polyester film
ECQF····· Polypropylene
ECE□ ····· Electrolytic
ECE□N ··· Non polar electrolytic
ECQS····· Polystyrene
ECS□ ····· Tantalum

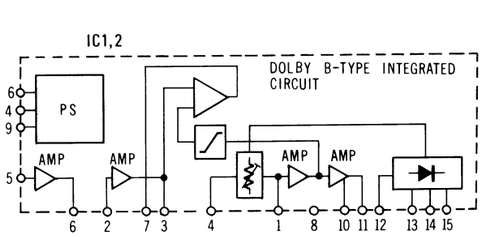
Ref. No.	Part No.	Ref. No.	Part No.
RESISTORS		R99, 100	ERD25TJ331
R1, 2	ERD25TJ100	R101, 102	ERD25TJ101
R3, 4	ERD25TJ822	R103, 104	ERD25TJ682
R5, 6	ERD25TJ104	R105, 106	ERD25TJ273
R7, 8	ERD25TJ101	R107, 108	ERD25TJ221
R9, 10	ERD25TJ823	R109, 110	ERD25TJ102
R11, 12	ERD25TJ121	R111	ERG12ANJ330
R13, 14	ERD25TJ184	R113, 114	ERD25TJ102
R15, 16	ERD25TJ274	R115, 116	ERD25TJ103
R17, 18	ERD25TJ682	R117	ERG12ANJ470
R19, 20	ERD25TJ681	R201	ERG12ANJ101
R21, 22, 23, 24	ERD25TJ103	R202	ERG12ANJ683
R25	ERD25TJ561	R203	ERD25TJ272
R27, 28	ERD25TJ472	R204	ERD25TJ393
R29, 30	ERD25TJ562	R205	ERD25TJ473
R31, 32	ERD25TJ224	R206	ERD25TJ102
R33, 34	ERD25TJ223	R207	ERD25TJ103
R35, 36, 37, 38, 39, 40	ERD25TJ102	R208	ERD25TJ472
R41, 42	ERD25TJ181	R209	ERD25TJ122
R43, 44	ERD25TJ105	R210	ERD25TJ220
R45, 46	ERD25TJ473	R211	ERG12ANJ680
R47, 48	ERD25TJ332	R212	ERG12ANJ560
R49, 50	ERD25TJ474	R213	ERD25TJ102
R51, 52	ERD25TJ274	R214	ERD25TJ681
R53, 54	ERD25TJ184	**VARIABLE RESISTORS**	
R55, 56	ERD25TJ471	VR1, 2	EVH3AA067A54
R57, 58	ERD25TJ272	VR3, 4, 5, 6	EVNK4AA00B54
R59, 60	ERD25TJ471	**CAPACITORS**	
R61	ERG12ANJ101	C1, 2	ECCD1H221K
R63, 64	ERD25TJ273	C3, 4	ECEA25M4R7
R65, 66	ERD25TJ274	C5, 6	ECCD1H221K
R67, 68	ERD25TJ393	C7, 8	ECKD1H102ZF
R69, 70	ERD25TJ682	C9, 10	ECEA0JS330
R71, 72	ERD25TJ681	C11, 12	ECFWD123KVY
R73, 74	ERD25TJ561	C13, 14	ECEA0JS330
R75, 76	ERD25TJ332	C15, 16	ECKD1H821KB
R77, 78	ERD25TJ473	C17, 18	ECEA1HS100
R79, 80	ERD25TJ102	C19	ECEA1CS331
R81, 82	ERD25TJ472	C21, 22	ECFWD123KVY
R83, 84	ERD25TJ472		
R85, 86			
R87, 88	ERD25TJ333		
R89, 90	ERD25TJ123		
R91, 92	ERD25TJ104		
R93, 94	ERD25TJ333		
R95, 96	ERD25TJ122		
R97, 98	ERD25TJ271		

NOTE:
- S1-1～S1-18 ····· Record/playback select switch (shown in playback position).
- S2-1～S2-5 ····· Tape select switch (1··· Normal, 2··· Fe-Cr, 3··· CrO_2).
- S3-1～S3-4 ····· Input select switch (1··· MIC, 2··· LINE IN).
- S4-1, S4-2 ····· Dolby select switch (1··· IN, 2··· OUT).
- S5-1, S5-2 ····· Power ON/OFF switch.
- S6 ····· AC voltage select switch.
- S7 ····· Motor muting switch.
- VR1, VR2 ····· Input level control.
- VR3, VR4 ····· Playback gain adjustment VR.
- VR5, VR6 ····· Recording gain adjustment VR.
- L5, L6 ····· Bias current adjustment coil.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise. K = 1,000 Ω.
- Capacity are in microfarads (μF) unless specified otherwise. P = Pico-farads.
- The mark (▼) shows test point. e.g. ∇ = Test point 1.
- All voltage values shown in circuitry are under no signal condition with volume control at minimum position. For measurement, use VTVM.

TERMINATIONS (BOTTOM VIEW)







SPECIFICATIONS • Input level control ··· MAX

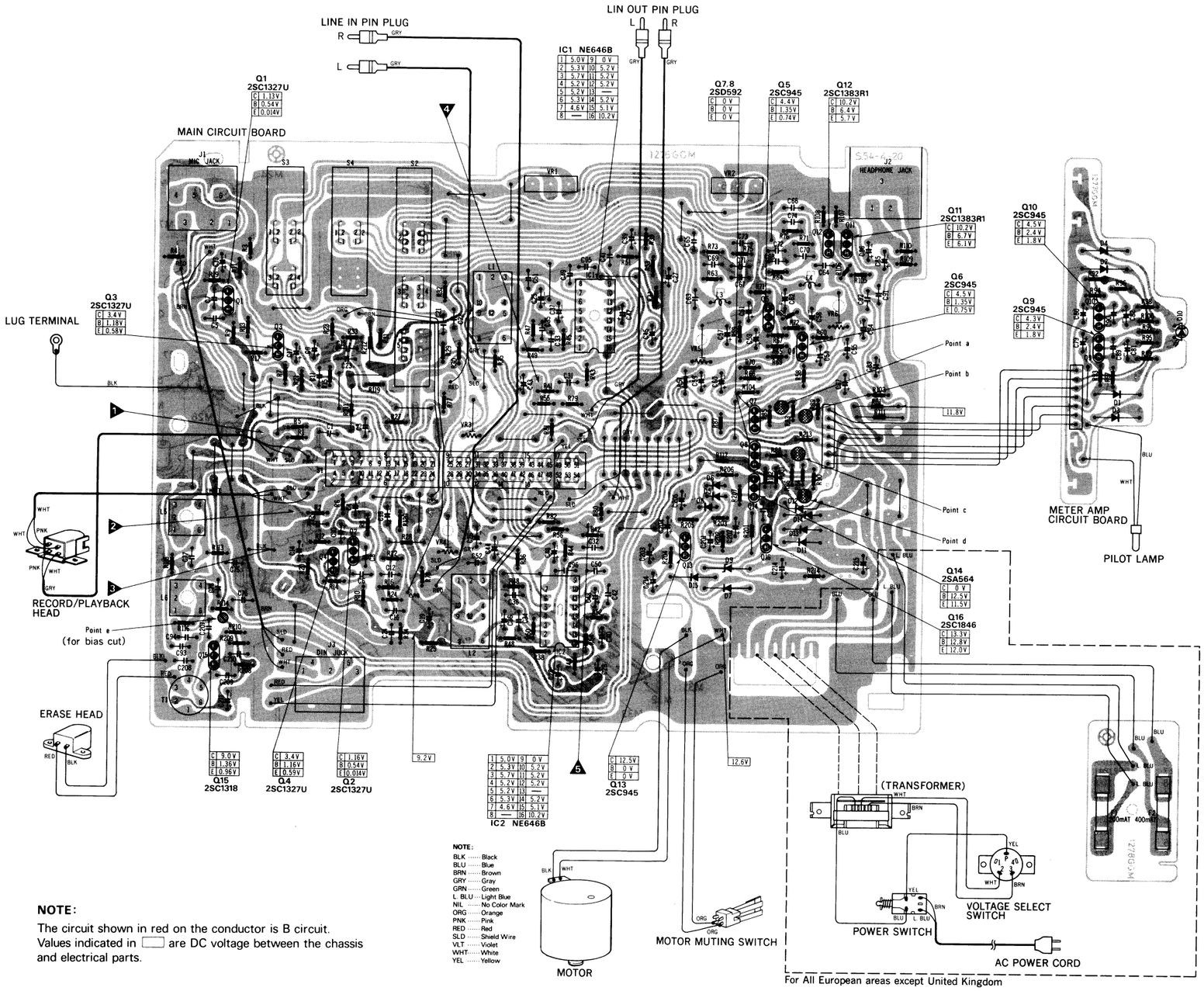
Playback S/N ratio Tast tape ··· QZZCFM	More than 45 dB
Overall distortion Test tape ··· QZZCRA for Normal ··· QZZCRX for CrO_2 ··· QZZCRY for Fe-Cr	 Less than 3% (Normal) Less than 4% (Fe-Cr, CrO_2)
Overall S/N ratio Test tape ··· QZZCRA	More than 43 dB (without NAB filter)

NOTE: △ indicates that only parts specified by the manufacturer be used for safety.

Ref. No.	Part No.
C23, 24	ECFWD183KVY
C25, 26	ECEA50MR33
C27, 28	ECEA1AS221
C29	ECEA1CS331
C31, 32	ECQM1H562JZW
C33, 34	ECQM1H472JZW
C35, 36	ECQM1H273JZW
C37, 38	ECEA1HS100
C39, 40	ECEA50MR33
C41, 42	ECFWD104MXY
C43, 44	ECEA1HS100
C45, 46	ECEA1ES4R7
C47, 48	ECEA1HS100
C49, 50	ECFWD473KXY
C51, 52	ECKD1H471KB
C53, 54	ECEA1HS3R3
C55	ECEA1CS101
C57, 58	ECEA1HSR1
C59, 60, 61, 62	ECEA1HS100
C63, 64	ECFWD333KXY
C65, 66	ECFWD153KVY
C67, 68	ECFWD104KXY
C69, 70	ECFWD563KXY
C71, 72	ECFWD683KXY
C73, 74	ECFWD183KVY
C75, 76	ECFWD222KVY
C77, 78	ECQP1122JZW
C79, 80	ECEA1HSR22
C81, 82	ECEA1HS010
C83, 84	ECEA1HS100
C85, 86	ECEA1AS470
C87	ECEA1CS221
C89, 90, 91, 92	ECKD102ZF
C93, 94	ECCD1H121K
C95, 96	ECKD102ZF
C201, 202	ECEA1ES470
C203	ECEA0JS330
C204	ECEA1HS010
C205	ECEA1ES101
C208	ECQP1332JZW
C209	ECFWD104MXY
C210	ECFWD103KVY
C211	ECEA1CS101
C212	ECKD1H103ZF
C213	ECEA1CS471
C214 △	ECEA1ES100
C215 △	ECEA1ES473
TRANSISTORS	
Q1, 2, 3, 4	2SC1327U
Q5, 6	2SC945P
Q7, 8	2SD592NCS
Q9, 10	2SC945P
Q11, 12	2SC1383R1
Q13	2SC945P
Q14	2SA564R
Q15	2SC1318R
Q16	2SC1846S
DIODES	
D1, 2, 3, 4	OA90Z
D5, 6	1S2473
D7	OA91LF
D8	1S2473
D9	MA1130
D10	LN213RP
D11, 12, 13, 14, 15	1SR34200
INTEGRATED CIRCUITS	
IC1, 2	NE646B

Ref. No.	Part No.	Part Name & Description
TRANSFORMERS		
T1	QLB0155	Oscillation Transformer
T2 [D] △	QLPD41EJC	Power Transformer
*For All European areas except United Kingdom.		
[N] △	QLPN52EJX	〃
*For Asia, Latin America, Middle East and Africa areas.		
[A] △	QLPA51EJC	〃
*For Australia.		
COILS		
L1, 2	QLM9Z7	MPX Filter
L3, 4	QLQX0332K	Peaking Coil
L5, 6	QCQC0332K	Bias Trap Coil
SWITCHES		
S1	QSSI205T	Slide Switch (Record/Playback Select)
S2	QES1490 "Silver Type"	Lever Switch (Tape Select)
	QES1485 "Black Type"	〃
S3	QES1491 "Silver Type"	Lever Switch (Input Select)
	QES1486 "Black Type"	〃
S4	QES1492 "Silver Type"	Lever Switch (Dolby IN/OUT Select)
	QES1487 "Black Type"	〃
S5 [D] [A] △	QSW2214A	Push Switch (Power ON/OFF Select)
*For All European areas except United Kingdom and Australia.		
[N] △	QSW1206AZ	〃
*For Asia, Latin America, Middle East and Africa areas.		
S6 [D] △	QSR1409H	AC Voltage Select Switch
*For All European areas except United Kingdom.		
[N] △	QSR1407H	〃
*For Asia, Latin America, Middle East and Africa areas.		
S7	QSB0247	Leaf Switch (Motor Switch)
FUSES		
F1 [D] △	XBAQ0013	Fuse (200mAT)
*For All European areas except United Kingdom.		
[N] △	XBA2E02MN5U	〃
*For Asia, Latin America, Middle East and Africa areas.		
F2 [D] △	XBAQ0007	Fuse (400mAT)
*For All European areas except United Kingdom.		
JACKS		
J1	QJA0257A	Microphone Jack
J2	QJA0249C	Headphone Jack
J3	QJS1954H	DIN Jack

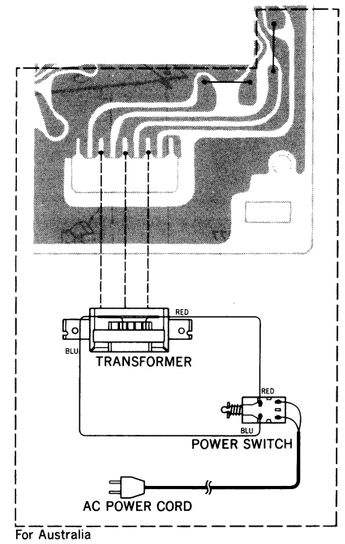
WIRING CONNECTION DIAGRAM



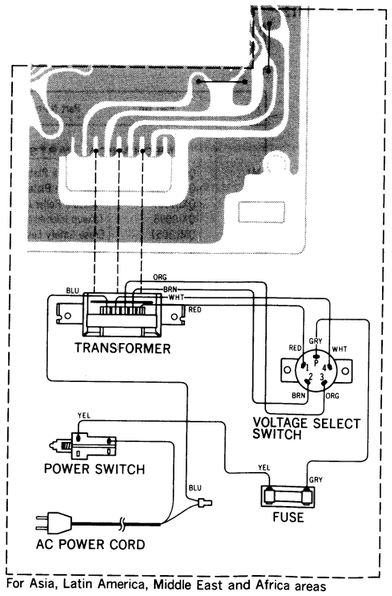
NOTE:

The circuit shown in red on the conductor is B circuit.
Values indicated in ▭ are DC voltage between the chassis and electrical parts.

NOTE:
BLK ..... Black
BLU ..... Blue
BRN ..... Brown
GRY ..... Gray
GRN ..... Green
L BLU ... Light Blue
NIL ..... No Color Mark
ORG ..... Orange
PNK ..... Pink
RED ..... Red
SLD ..... Shield Wire
VLT ..... Violet
WHT ..... White
YEL ..... Yellow



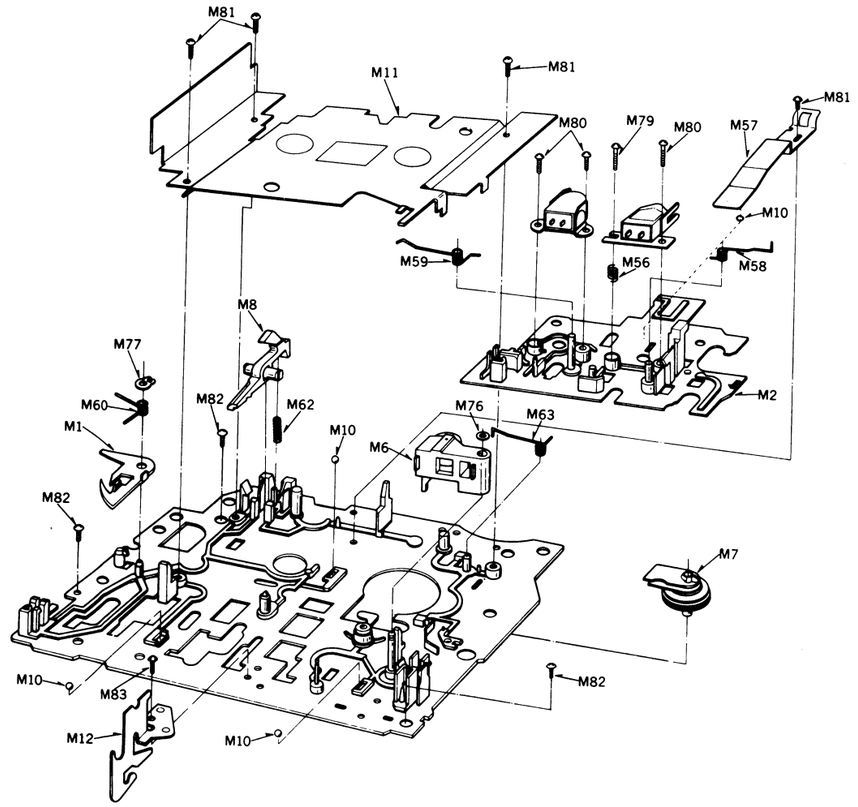
For Australia

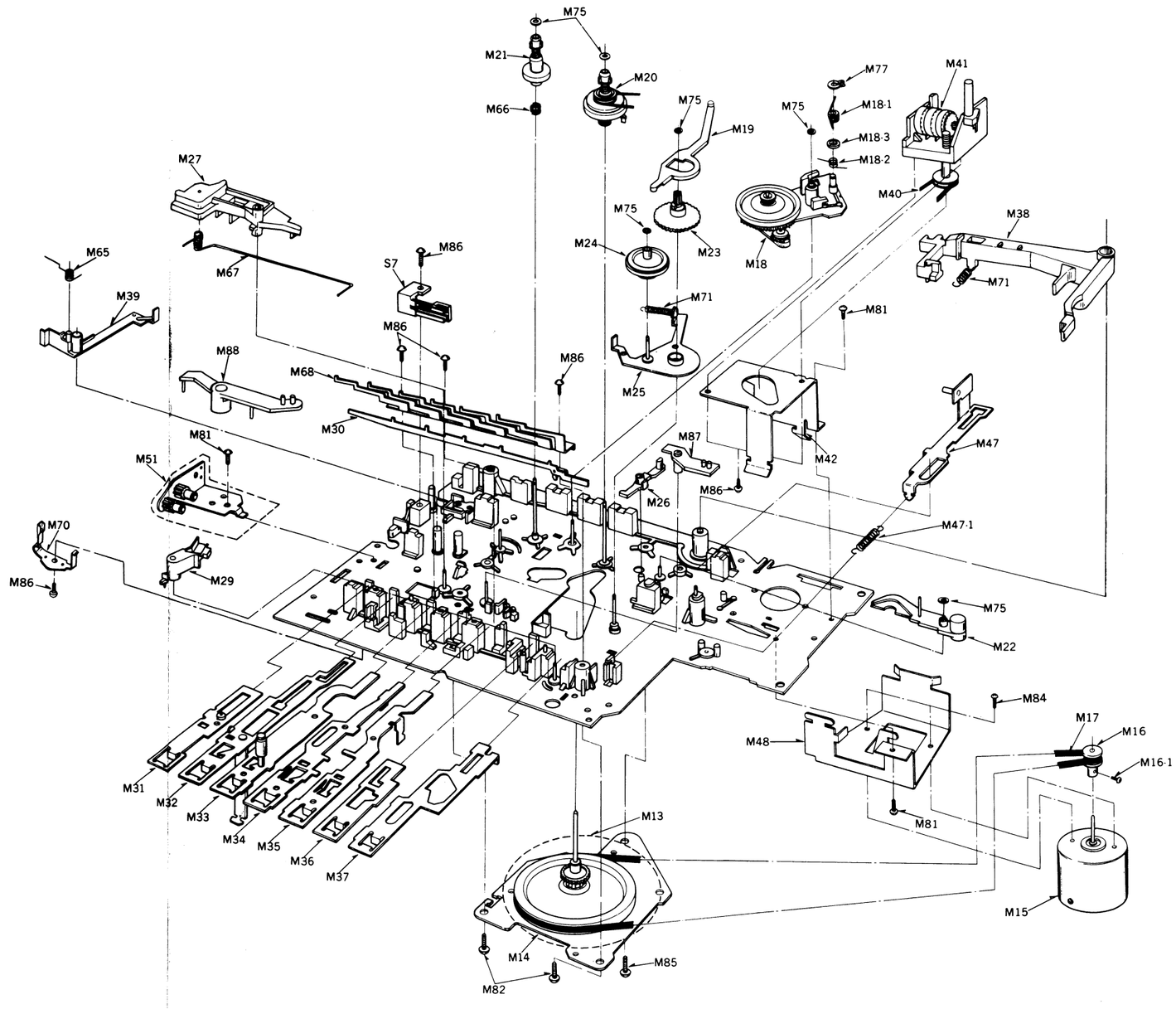


For Asia, Latin America, Middle East and Africa areas

For All European areas except United Kingdom

EXPLODED VIEWS





Ref. No.	Part No.	Part Name & Description
		MECHANICAL PARTS
M1	QML2898	Pause Lock Plate
M2	QMK1612	Head Base Plate
M6	QXL1057	Pressure Roller Lever Assembly
M7	QXI0098	Takeup Idler Assembly
M8	QML3051	Erase Safety Lever
M10	QDK1012	Steel Ball 2.5φ
M11	QGK2997	Chassis Cover
M12	QMA3169	Shaft Reinforcement Angle
M13	QXF0161	Flywheel Assembly
M14	QXH0239	Flywheel Retainer Assembly
M15	MMI6A2LKPA	Motor
M16	QXP0513	Motor Pulley Assembly
M16-1	XSN2−3	Screw ⊖2×3
M17	QDB0219	Flywheel Belt
M18	QXL1136	Fast Forward Arm Assembly
M18-1	QBN1517	Fast Forward Spring
M18-2	QBN1559	Fast Forward Arm Spring
M18-3	QMC0080	Collar
M19	QML3040	Cam Lever
M20	QXD0067	Takeup Reel Table Assembly
M21	QXD0084	Supply Reel Table Assembly
M22	QXL1055	Auto-Stop Lever Assembly
M23	QDG1096	Cam Gear
M24	QXG1026	Auto-Stop Gear Assembly
M25	QXL1037	Gear Lever Assembly
M26	QML3042	Auto-Stop Obstruction Lever
M27	QML3217	Pause Lever
M29	QML3124	Lock Release Arm
M30	QMR1735	Lock Rod Assembly
M31	QXR0342	Pause Rod Assembly
M32	QXR0465	Record Rod Assembly
M33	QXR0344	Playback Rod Assembly
M34	QMR1624	Rewind Rod-A
M35	QMR1623	Fast Forward Rod-A
M36	QMR1622	Stop Rod-A
M37	QMR1621	Eject Rod-A
M38	QML3038	Switch Arm
M39	QML3287	Brake Lever
M40	QDB0240	Counter Belt
M41	QDC0110	Tape Counter
M42	QMA3676	Counter Angle
M47	QXR0403	Eject Rod-B
M47-1	QBT1619	Idler Spring
M48	QMA3414	Motor Angle
M51	QXG1031	Damper Gear Assembly
M56	QBC1278	Head Spring
M57	QBP1841	Head Base Plate Pressure Spring
M58	QBN1488	Pressure Roller Spring
M59	QBN1733	Playback Spring
M60	QBN1480	Pause Lock Spring
M62	QBC1350	Safety Lever Spring
M63	QBN1513	Idler Spring
M65	QBN1574	Brake Spring
M66	QBC1344	Back Tension Spring
M67	QBN1555	Pause Spring
M68	QBP1664	Operation Rod Spring
M70	QBP1662	Lock Rod Spring
M71	QBT1682	Lock Holding Spring
M75	QBW2008	Snap Washer 2φ
M76	QBW2046	Snap Washer 3φ
M77	XUB4FT	Stop Ring C4φ
M79	QHQ1226	Head Adjustment Screw
M80	XSN2+10	Screw ⊕2×10
M81	XTN26+5B	Tapping Screw ⊕2.6×5
M82	XTN3+10B	Tapping Screw ⊕3×10
M83	XTN26+8B	Tapping Screw ⊕2.6×8
M84	XSN26+3	Screw ⊕2.6×3
M85	XTN3+25B	Tapping Screw ⊕3×25
M86	XTN26+6B	Tapping Screw ⊕2.6×6
M87	QML3504	Cue Lever
M88	QML3207	Muting Lever

SPECIFICATIONS

Pressure of pressure roller	350±50gr
Takeup tension • Use cassette torque meter ··· QZZSRKCT	50±15gr-cm
Wow and flutter (JIS) • Use test tape ··· QZZCWAT	0.12% (WRMS)

H.M DDKNA Printed in Japan